Senator John Glenn, 76, will become the oldest person to travel in space when he boards Space Shuttle Discovery Oct. 29 for a 10-day mission. Glenn, born July 18, 1921, in Cambridge, Ohio, was the first American astronaut to orbit the Earth on Feb. 20, 1962. His mission lasted just 4 hours 55 minutes, but was one of the most important milestones in the development of the U.S. space program.

John Glenn trying on his first spacesuit, 1962. (NASA photo)

John Glenn trying on his latest spacesuit, 1998. (NASA photo)

BACK TO THE FUTURE

Mercury and Shuttle Comparison

	Mercury Capsule	Discovery Orbiter
Launch	Feb. 20, 1962	Oct. 29, 1998 (scheduled)
Launch Time	9:47:39 a.m. EST	2:00 p.m. EST
Site	Cape Canaveral, Fla.	Kennedy Space Center, Fla.
Spacecraft	Mercury Capsule 13	Space Shuttle Orbiter
Name	Friendship 7 (one flight)	Discovery (23 flights)
Altitude	162.2 x 100 statute miles	325 statute miles
Orbits	3 orbits	144 orbits
Orbital Period	88 minutes, 29 seconds	90 minutes
Duration	4 hours, 55 minutes, 23 seconds	8 days, 20 hours
Distance Flown	75,679 statute miles	3,600,000 miles
Velocity	17,544 MPH	17,500 MPH
Maximum G's	7.7	3
Windows	1	10
Toggle switches	56	856
Pushbuttom switches	8	219
Cubic feet per crew member	36	332
Landing	Feb. 20, 1962, 2:43:02 P.M. EST, 800 miles southeast of Bermuda	Nov. 7, 1998, Kennedy Space Center Shuttle Facility 10 a.m. EST

AEDC gives Glenn another boost

Two weeks from today John Glenn returns to space. And just like his first flight in 1962, he'll be aboard an AEDC-tested spacecraft.

Space — the final frontier.

Senator John Glenn has been there; AEDC helped him arrive.

On Feb. 10, 1962, Colonel Glenn, one of the original Mercury 7 astronauts, became the first American to orbit the Earth in his Mercury capsule named Friendship 7.

AEDC played a key role in testing and developing the Mercury in the late '50s and early '60s.

Now, 36 years later, John Glenn is going back into orbit. Once again, AEDC has a share in the ride.

This time Glenn makes his star trek on board the space shuttle — a program AEDC played a major role in from the late '60s through the '80s.

In January, NASA officials added Glenn as a payload specialist to the crew of the Space Shuttle Discovery, scheduled to launch Oct. 29.

Best known for that historic Mercury flight, Glenn again will make history when he becomes the oldest astronaut to fly in space, exceeding the current record of Story Musgrave, who flew aboard Columbia in 1996 at the age of 61.

Glenn requested permission to make the journey to conduct space-based research on aging.

"The research on this mission will contribute to building our knowledge and understanding of the aging process," Dr. Richard Hodes, director of the National Institute on Aging, said. "The data collected will be used to conduct continued research on how aging affects sleep cycles, muscle deterioration and balance."

According to NASA reports, the 77-year old senator was granted permission only if he met the agency's physical and mental requirements. He underwent numerous tests and evaluations by a team of NASA physicians and independent consultants, who all found him medically qualified to return to space.

In addition, Dr. Michael DeBakey, chancellor emeritus of Baylor Medical College reviewed Glenn's medical information and saw, "no evidence to prevent him from going into space."

At least eight other 55-year old astronauts have made the journey to space, and 54-year old Shannon Lucid recently spent six months aboard the Russian space station Mir.

NASA Administrator Daniel Goldin referred to this as John Glenn's "long-awaited and much deserved second flight."

The First Flight

On Feb. 20, 1962 Glenn, the first of many Ohio astronauts, climbed into his Friendship 7 Mercury capsule and lifted off on an Atlas-6 rocket. His orbital flight lasted 4 hours, 55 minutes and 23 seconds, all but 7 minutes being in weightlessness. Glenn became the first American to orbit the Earth and an instant national hero.

AEDC's role

During the Project Mercury era (1958-63), AEDC provided approximately critical testing on components of the spacecraft, including the Mercury 7 that transported Glenn to space. AEDC engineers performed the first wind tunnel test on a scale model of a proposed Saturn rocket more than nine years before Neil Armstrong's lunar mission.

From 1960 to 1968, using its unique rocket test chambers AEDC accomplished more than 1,700 simulated space conditions test firings of actual rocket motors comprising the Saturn V launch vehicle, and provided more than 3.300 wind tunnel test hours. This was more than 35 percent of all NASA Apollo "man-on-the-moon" program wind tunnel testing for that program. The center's 25 test facilities provided 55,000 hours of test work directly supporting the Apollo program.

The STS-95 Crew and Mission

The STS-95 Mission Commander will be Curt Brown. Joining Brown on the flight are Pilot Steve Lindsey, Mission Specialists Scott Parazynski, Steve Robinson, and European Space Agency astronaut Pedro Duque, along with two payload specialists — Senator John Glenn and Chiaki Mukai from the Japanese Space Agency.

Objectives include conducting science experiments in the pressurized Spacehab module, deployment and retrieval of the Spartan free-flyer payload, and operations with the International Extreme Ultraviolet Hitchhiker and the HST Orbiting Systems Test payloads.

(Compiled by Tina Barton and Chris Jones, AEDC Public Affairs, from NASA and AEDC reports)

In an Air Force centrifuge at Brooks AFB, Texas, John Glenn is strapped in by the Johnson Space Center's Carlous Gillis (left) and USAF Tech. Sgt. Mac Baker, a centrifuge mission controller. Glenn completed two nine-minute sessions in the centrifuge, reaching a threshold of three G-forces, or three times his own body weight. (USAF photograph by Staff Sgt. Steve Thurow)

THE CREW — Seated are astronauts Curtis Brown (right), mission commander; and Steven Lindsey, pilot. Standing, from the left, are Scott Parazynski and Stephen Robinson, both mission specialists; Chiaki Mukai, payload specialist representing Japan's National Space Development Agency; Pedro Duque, mission specialist representing the European Space Agency; and John Glenn Jr., payload specialist.

A word about the mission from John Glenn

On Jan. 16, Administrator Dan Goldin of NASA announced my appointment as a member of the crew of the Space Shuttle Discovery for shuttle mission STS-95. I will serve as a payload specialist and a subject for basic research on how weightlessness affects the body of an older person. Obviously, I welcome the prospect of returning to space 36 years after I first orbited the Earth as part of the Mercury program. I feel both privileged and honored to have been selected by NASA.

Glenn

However, whatever my own personal feelings are, the mission is only justifiable if it serves a larger scientific and public interest. Both NASA and I strongly believe that the public interest will be served by the new directions my mission could lead us in the important area of aging research.

The study of aging becomes more critical as we enter the 21st century. By 2030, the number of Americans over the age of 65 years is estimated to exceed 69 million, more than double its current figure. This increase will have a profound effect on our economy, culture and healthcare. Indeed, the rapid growth in numbers of the elderly is a worldwide phenomenon.

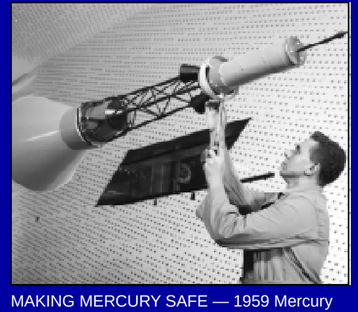
Collaborative research begun two years ago by NASA and the National Institute on Aging has shown that astronauts in space even for only a short period suffer from loss of bone and muscle mass, disturbed sleep patterns, balance disorders, decreased cardiovascular strength, and depressed immune response due to the weightless environment. Luckily these losses reverse themselves after the astronauts return to Earth. Interestingly enough, these ailments also occur on a more gradual basis among people as they age (usually as they pass 65 years). Scientists are interested in studying these effects on astronauts in the hope that we will learn how to better treat such frailties of old age, as well as benefit younger astronauts and people.

I will be a test subject for what I believe will be an expanded effort by NASA and NIA to study the aging process in other older persons. At 77 years of age, I will be the oldest astronaut to fly in space by 16 years and nearly twice the age of the average astronaut. I will be assigned several areas of personal basic research, with monitoring to occur pre-flight, in-flight and post-flight, along with other bio-research projects involving all crew members.

I have been asked if I consider myself a role model for older people. I'll leave perceptions up to other people, but if my flight inspires other older Americans to strive to set and achieve high goals for themselves, then I think it is a good thing. I have fortunately been blessed with good health, but I have also worked for it. I exercise regularly, both with weights, speed-walking and on a treadmill, closely watch my diet and weight, and I don't smoke.

MISSION AEDC: Testing space systems to send humans into space and return them safely

PROJECT MERCURY model in AEDC's transonic wind tunnel in 1959.



MAKING MERCURY SAFE — 1959 Mercury escape tower test in the 16-foot transonic wind tunnel improved stability to prevent tumbling in the event of an emergency abort during launch.

GEMINI SEPARATION TEST was conducted in the AEDC's J-1 test cell in 1963. The tests helped determine a solution for retro-rocket failures during a launch abort.

APOLLO SUPERSONIC TEST FOR ABORT CONFIGURATION — A scale model of the Apollo three-man capsule, with escape tower and jettison rocket attached, was tested in 1962 in AEDC's von Karman Gas Dynamic Facilities 40-inch supersonic wind tunnel.

SATURN V model undergoes aerodynamic testing and evaluation in the center's 16-foot transonic propulsion wind tunnel in 1966.

THE SHUTTLE — One of the final space shuttle configurations tested at AEDC in 1976 during a staging test in hypersonic wind Tunnel A in the von Karman Gas Dynamics Facility.

THE NEXT GENERATION SPACE VEHICLE — A 7.75 percent scale model of Lockheed Martin Skunk Work's X-33 in 16-T in 1997. The X-33 is the demonstrator for a future single-stage-to-orbit reusable launch vehicle.